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ABSTRACT

Using methods employed by Chaikin et al (1974) and Chaikin and Derlega (1978) to determine when tutors are susceptible to expectancy effects and whether expectancies lead to discrimination against low ability students, black undergraduates (N=76) taught a lesson on fire safety at home to a 10-year-old boy. Two black male and two white male children served as confederates. Subjects either were told a child had a high I.Q., low I.Q., or were given no information (control group). Subjects' knowledge about black confederates' alleged I.Q. did not influence expectancies or teaching behavior toward low I.Q. children. Subjects rated those white confederates assigned high I.Q.'s as more intelligent than children assigned low I.Q.'s. White confederates assigned low I.Q.'s were asked more questions and given fewer expressive gestures than control group white confederates. Subjects maintained more physical distance with white than black confederates. Comparing these results to a similar study using white subjects (Chaikin and Derlega, 1978), black tutors discounted the diagnostic value of I.Q. scores for low expectancy black children while white tutors accepted all I.Q. information. Information about I.Q. and a child's race may interact to influence tutors' cognitions and affect their teaching behavior. (Author/NRB)

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Pygmalion Effects Among Blacks: When and How Expectancies Occur[1]

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Pygmalion Effects Among Blacks: When and How Expectancies Occur[1]

In 1968, Rosenthal and Jacobson reported the results of a field study, Pygmalion in the Classroom, that manipulated teachers' expectancies about the future academic performance of their pupils. In a lower income neighborhood elementary school, 20 percent of the pupils had been identified randomly as "intellectual bloomers," based on results from a test which the children had taken before the new academic year. Actually, the test was an intelligence measure--the Flanagan Test of General Ability. The bloomers within each class, according to information given to the teachers, were expected to increase substantially in their intellectual performance during the school year.

The pupils were retested at the end of the school year with an alternate version of the same intelligence measure. Children who had been identified as bloomers tended to increase in their intelligence test scores more than the control children did. Differences between the gain scores of the bloomer and control groups were greatest in the first two grades. Though critics have questioned these results (e.g., Clairborne, 1969; Elashoff & Snow, 1971; Grieger, 1971; Thorndike, 1968), many studies have confirmed that teacher expectancies influence student performance (see Brophy & Good, 1974; Gerard & Miller, 1975; Jones, 1978; Rosenthal, 1974; Rosenthal & Rubin, 1978).

Since the publication of Rosenthal and Jacobson's (1968) study, considerable research has been conducted on possible mediators of teacher expectancy effects (see Brophy & Good, 1974 for a literature review). The results from this research have been relatively straight-forward: Teachers with favorable

expectancies about a student's future academic performance tend to behave in a more supportive and encouraging manner. Brophy and Good (1970), for instance, found that teachers would demand better performance from students for whom they had high expectancies, while they would accept poorer performance from students for whom they had low expectancies. When the highs responded incorrectly or were unable to respond to a question, the teachers were more likely to provide them a second response opportunity by repeating or rephrasing a question or by providing a clue. Teachers also tended to call on and praise students identified as high more than those identified as low in academic ability.

Most studies on mediators of teacher expectancy effects focus on the verbal aspects (for instance, expression of verbal praise, number of questions asked to the pupil). However, similar results have been reported in research on nonverbal behavior. A study conducted by Chaikin, Sigler, and Derlega (1974) found that undergraduate college students in a microteaching situation (that is, one teacher with one pupil) displayed different nonverbal behavior with "bright" than with "dull" or control confederates. Pupils in the high expectancy group received more smiling, direct eye gaze, leaning forward, and up-and-down head movements from their tutors than did the pupils in the other two conditions.

These consistent findings support the following model proposed by Brophy and Good (1970) to explain how self-fulfilling prophecies occur in the classroom:

> (a) The teacher forms differential expectations for student performance; (b) He then begins to treat children differently in accordance with his differential expectations; (c) The children respond differentially to the teacher because they are being

> treated differently by him; (d) In responding to the teacher, each child tends to exhibit behavior which complements and reinforces the teacher's particular expectations for him; (e) As a result, the general academic performance of some children will be enhanced while that of others will be depressed, with changes being in the direction of teacher expectation; (f) These effects will show up in the achievement tests given at the end of the year providing support for the "self-fulfilling prophecy" notion. (pp. 365-366)

Though this model has made a substantial contribution in understanding how teacher bias effects may operate, many unanswered questions remain. First, though evidence for teacher bias exists, we don't know when this phenomenon is likely to occur. Are teachers more susceptible to bias effects under certain conditions than at other times? Parenthetically, we know very little about the circumstances when experimenter bias effects occur (Ellsworth, 1978). Second, do teacher expectancies inevitably lead to discriminatory behavior against supposedly low ability pupils? It is possible to imagine situations when teachers might devote extra attention and encouragement to low expectancy students.

Expectancies probably interact in a complex manner with other variables (including teacher-student characteristics and situational variables) to affect teacher behavior. One study (Chaikin & Derlega, 1978) found that expectancies interacted with a pupil's race to influence a tutor's nonverbal behavior. White, undergraduate students had been asked to teach a lesson to a 10-year-old confederate who was either black or white. The subjects (or tutors) were presented with information that the child was either bright, dull,

or no evidence was available about the child's intelligence. Findings indicated that the white, "bright" child received more eye gaze, smiles, up-and-down head movements, and laughs than the white control or "dull" child. In contrast, tutors displayed no differences in their nonverbal behaviors towards the black child as a function of expectancy. Overall, tutors smiled and looked more at the white than at the black confederate. Specific evidence is not available, but one may speculate that problems many black children have in classrooms are due partially to the social distance maintained nonverbally by white teachers towards this minority group (see Chaikin, Gillen, Derlega, Heinen, & Wilson, 1978; Feldman & Donohoe, 1978; Gerard & Miller, 1975; Jensen & Rosenfeld, 1974).

In a recent review of 345 studies on interpersonal expectancy effects, Rosenthal and Rubin (1978) found substantial support for the phenomenon. However, none of the research has systematically studied expectancy effects among members of a minority group such as blacks or Chicanos. It seems that studying expectancy effects among minority-group individuals could shed light on when and how this phenomenon occurs. For instance, black teachers, as members of a discriminated group as well as frequent targets of prejudice, may discount information about intelligence that tends to stereotype children negatively. Black teachers are undoubtedly aware that I.Q. information has been used occasionally to justify unequal treatment of minorities. Thus, blacks may not exhibit teacher bias effects regardless of information given about a child's intelligence. Alternatively, blacks may believe that the results of intelligence tests are more useful in diagnosing the intellectual abilities of white as opposed to black children. Blacks may believe that intelligence tests have been mainly developed and standardized on white populations; hence, items on these tests may not be considered culturally biased

and unfair for a white group of students. Thus, a black individual's knowledge about a student's I.Q. may influence behavior towards a white child but not towards a black child.

In order to test these notions, we arranged for black undergraduate students to teach a lesson to a child. The participants in the research were led to expect either superior or inferior performance from the child. Control subjects were given no information about the child's intelligence. Two black children and two white children alternated in the role of confederate.

The subjects in this investigation were not actual teachers from elementary schools. The results may suggest, however, how black communicators react to information about expectancies when interacting with black and white target persons.

Method

Subjects and Confederates in the Research

Seventy-six black, undergraduate students (45 women and 31 men) participated as subjects. The participants were enrolled at either Norfolk State University or Old Dominion University in Norfolk, Virginia. They registered for an experiment dealing with the "psychological study of different teaching methods."

The confederates were two black male and two white male children enrolled in local elementary schools. All the boys were above-average students.

The confederates had been trained to sit quietly while interacting with their "teacher." The children, who alternated in the role of "pupil," sat straight up in their chair, kept their hands motionless, and looked at the "teacher." A 45-second segment of each confederate's behavior was videorecorded in every session to insure that their nonberbal behavior was

standardized. No major differences in nonverbal behavior was found among the four confederates as a function of their race, teacher's expectancy, or subject's sex.[2] The confederates did not know the actual purpose of the study until the data collection was completed.

Procedure

The present procedures are based on the methods employed by Chaikin et al. (1974) and Chaikin and Derlega (1978) in two earlier experiments. Subjects arrived individually for the experiment and were met by the experimenter. Subjects were told that they would be teaching a short lesson on "Fire safety in the home" to a 10-year-old boy from a local elementary school. There was no mention of the child's race. The subject was permitted approximately ten minutes alone to study the lesson plan. Afterwards, the experimenter returned and asked if the subject had any questions. The experimenter then said that the child's elementary school teacher had provided some information about the child's abilities that might prove useful in teaching the lesson. Up to this point the experimenter had been blind about the expectancy manipulation. The experimenter took out a sheet from a folder that contained statements corresponding to one of the three expectancy conditions.

(1) High expectancy: "According to his teacher, he is quite bright. His tested I.Q. is 130. He does very well in school and is highly motivated. He gets along well with his peers."

(2) Control: "Gee, it appears that the only thing his teacher said about him is that he gets along well with his peers. She must have forgotten to include his I.Q. score and other information."

(3) Low expectancy: "According to his teacher, he is somewhat slow. His tested I.Q. is 85. He does not do very well in school, although he appears to be highly motivated. Also, he gets along well with his peers."

All subjects were told that the child (or pupil) was in the fifth grade.

The experimenter took the subject into a room where the child had been waiting. The experimenter introduced them and then seated the subject three and one-half feet across from the confederate. The subject was told that the lesson should be about ten minutes long. The subject was also told that the session would be audiotaped; a microphone was visible in the room. Then the experimenter left the room and entered an adjacent room to turn on the videotape equipment.

Each subject's behavior was videorecorded for five minutes. A split screen videorecording device was used to record simultaneously the subject's face and an overall picture of body movements and posture. (This videorecording did not include a recording of the confederate's nonverbal behavior. After the subject's data was collected, a videotape of the confederate was made for an additional 45 seconds.) After the lesson had been completed the subjects were escorted into another room to fill out a brief questionnaire, asking them to rate along nine-point scales the pupil's psychological adjustment, intelligence, motivation, and friendliness. The subjects were also asked to rate how much they enjoyed teaching the lesson.

When subjects finished the questionnaire they were debriefed (usually by the senior author). During the debriefing several subjects expressed some suspicion about the actual purpose of the study. Only one woman whose data was not included in the analyses guessed the study's purposes accurately. The debriefing interviewer explained the reason for conducting the research as well as the purpose of using deception. Subjects' permission was requested to use their videotape recordings for the data analyses. They agreed to this

request. Most subjects expressed strong interest in the research, which frequently developed into a lengthy discussion of problems in social stereotyping.

Results

Two judges rated the videotapes. They had no information about the study's purposes or procedures. The confederate had been outside camera range so the judges did not know the race of the child. Each judge rated one-half of the videotapes.

Mehrabian's (1972) scoring system was used by judges to rate the following nonverbal behaviors: forward, backward, and straight body position, eye gaze (defined as looking at where the confederate's face would be), up and down head movement, side to side head movement, expressive gestures, nervous gestures, smiles, frowns, and laughter.

The judges rated a five minute segment of videotape beginning at the one minute mark for each subject. Eye gaze and body position were rated by the number of seconds that the behavior occurred during the five minute period. Frequency counts were used to score the other nonverbal measures. To assess the judges' reliability in scoring nonverbal behavior, both judges rated 25 randomly selected ten second segments across the various videotapes. Reliabilities between the two judges were generally high (in the .80's and .90's) except for up-and-down head nods (r = .50) and eye gaze (r = .67).

Judges also rated the frequency of three verbal teacher behaviors: positive verbal reinforcements (e.g., saying "that's good," and expressions of praise); number of times the tutor asked the confederate questions; and teacher persistence (subject provides a second response opportunity by repeating or rephrasing a question or by giving clues). Reliability coefficients

were high (above .95) between the two judges in scoring these verbal categories.

Data for all the dependent measures were analyzed in a 2 x 3 x 2 analysis of variance with confederates' race, expectancy, and sex of subject as factors. Preliminary analyses had indicated no effects due to individual confederate, hence the data were collapsed over this factor.

A main effect due to the confederate's race was found on the backward body position measure, $F[1,64] = 4.7$, $p < .034$, $d = .54$.).[3] Subjects leaned back less when interacting with a black than with a white pupil. Similar results, albeit marginally significant, were found on two other measures, sitting straight ($F[1,64] = 3.8$, $p < .057$, $d = .49$) and up-and-down head movements ($F[1,64] = 3.3$, $p < .075$, $d = .46$). Subjects tended to sit straight up more in their chairs and to use more up-and-down head nods with the black than with the white pupil.

Individual contrasts were performed to examine the joint effects of race and expectancy.[4] In examining the results for the black confederates, expectancy had no effects. There were no differences in the tutors' behavior (nonverbal or verbal) toward bright, control, or dull black confederates.

For the white confederates there were some consistent effects of teacher expectancy on the subjects' behavior. White control confederates received significantly more expressive gestures than the confederates in the dull white condition (128 versus 73; t (70) = -2.56, $p < .013$, $d = .61$). Expressive gestures for the bright white confederates fell midway between the other two groups (mean = 99) but this condition was not significantly different from either. The tutors asked more questions on the average to the white dull than to the white control confederates (10 versus 5 questions; $t(70) = 2.61$, $p < .011$, $d = .62$). Number of questions put to the white bright confederates fell in the middle

between the other two groups (mean = 7) but this condition did not differ significantly from either one.

No other significant effects involving race and expectancy were found on nonverbal and verbal tutor behaviors.

Subjects' Sex

Sex of subject was not involved in any interactions with confederate's race or expectancy on the nonverbal or verbal measures. A significant main effect for sex was found on the sitting straight measure, $F[1,64] = 5.1$, $p < .027$, $d = .57$. Women sat up straight more in comparison to men. A marginally significant main effect for sex was found on the leaning forward measure, $F[1,64] = 2.8$, $p < .099$, $d = .42$. Women tended to lean forward more often than the men. These results are consistent with earlier studies with adult, white subject populations showing that women maintain less spatial distance than men during social interaction (see Harper, Wiens, & Matarazzo, 1978, for a literature review). In a related experiment (Chaikin & Derlega, 1978), white women were more expressive facially than white men in terms of frequency of smiling, frowning, and laughing (which are kinesic behaviors). In the present experiment, black women and men did not differ on any measures of facial expressiveness; black women and men tended to differ in their preferred spatial distance during social interaction (which is a proxemic behavior).

Questionnaire Results

Subjects rated the confederate on paper-and-pencil measures following the lesson, including judgments of the child's intelligence, adjustment, and motivation. A marginally significant main effect due to expectancy was found on the intelligence rating, $F[2,64] = 2.4$, $p < .099$, $d = .39$. Since it was expected that black tutors might react differently to the expectancy manipulation as

a function of the pupil's race, individual contrasts (collapsed across subjects' sex) were performed to test for the effects of expectancy on intelligence ratings for the black and white confederates.[5] For the black confederates there was one significant difference in subjects' intelligence ratings as a function of expectancy: Black pupils in the bright condition were rated as significantly more intelligent than in the control condition, t (70) = 1.73, $p < .05$, one-tailed test, $d = .41$. Black pupils in the low expectancy condition were rated in between the other two groups, but not significantly different from either. For white confederates subjects rated those in the bright condition as significantly more intelligent than in the low expectancy condition, t (70) = 1.83, $p < .05$, one-tailed test, $d = .44$. Tutors also estimated the intelligence of children in the white control condition as significantly higher than in the low expectancy condition, t (70) = -1.68, $p < .05$, one-tailed test, $d = .40$.

A marginally significant expectancy main effect was found on the rating of the confederates' adjustment, $F[2,64] = 2.98$, $p < .058$, $d = .43$. The bright and control confederates were perceived to be better adjusted overall than the dull confederates.

Discussion

The present results provide data relevant to two major issues in teacher expectancy research: When are tutors susceptible to expectancy effects and do expectancies inevitably lead to discrimination against low ability students?

Only one significant difference was found in subjects' ratings of the black confederates' intelligence based on the expectancy manipulation. Black children identified as "bright" were rated as more intelligent than black children in the control condition. Black children identified as "dull" did not receive intelligence ratings that were different from children in the

other two conditions. The subjects may have thought that intelligence test results were not meaningful in diagnosing the abilities of an allegedly "dull" black child. While I.Q. scores may correlate with academic performance in the general population, the black tutors may have questioned this relationship for low expectancy, black children. Thus, a black tutor's knowledge about a black confederate's I.Q. did not seem to influence expectancies and/or subsequent teaching behavior with the low expectancy child. On the other hand, tutors seemed to accept the expectancy information that the "bright" black child was more intelligent than the black child in the control group. It is worth emphasizing finally that expectancy had no effect on tutors' overt behavior (verbal and/or nonverbal) towards the black children.

Though expectancy had modest effects on subjects' reactions with black confederates, it had more impact when subjects interacted with white confederates. Subjects perceived that the white children in the high expectancy condition were more intelligent than the white children in the low expectancy condition. Moreover, teacher expectancy influenced the number of questions children were asked. Confederates in the white dull condition were asked more questions than those in the white control condition. We don't know with certainty why more questions were asked of the white dull confederates. The tutors may have been unsure about the appropriate level at which to teach the lesson on fire safety to these children. Tutors may have asked questions to identify how much or how little these children knew about the topic. Also, tutors may have asked more questions to ensure that previously taught material had been understood adequately. In this context the lower frequency of expressive gestures in the white, low expectancy condition may have been a

direct consequence of the greater number of questions tutors asked in the white dull than in the control condition. Tutors' expressive gesturing may have been somehow incompatible with asking questions to the dull pupil.

It is worthwhile comparing present results to earlier findings with white tutors who had been asked to teach a lesson to a black or white pupil (Chaikin & Derlega, 1978). While the black tutors may have discounted the diagnostic value of I.Q. scores for low expectancy black children, white tutors readily accepted information presented about a black or white child's intelligence.

In the Chaikin and Derlega (1978) study, white tutors behaved differently with white and black children as a function of expectancy information. Though black tutors seemed to be sensitive to the pedagogical needs of the low ability white children (by asking them more questions), white tutors in the earlier study systematically avoided low ability as well as control group white children (on nonverbal distancing measures) relative to high ability white children. Interestingly, black and white tutors did not differ in their nonverbal behavior towards black confederates as a function of expectancy.

Past investigators (Brophy & Good, 1970, 1974; Rosenthal, 1974) seem to have assumed that teacher expectancies operate in a direct manner to produce different teaching behaviors toward "bright" and "dull" children. Research has not examined sufficiently how expectancies are interpreted at a cognitive level by teachers. For instance, based on attribution theory, one may ask how teachers use expectancy information to determine specific causal antecedents for a child's behavior such as ability, effort, luck and task difficulty (cf. Weiner, Frieze, Kukla, Reed, Rest, & Rosenbaum, 1971; Weiner, 1979).

The present research suggests that information about I.Q. and a child's race may interact to influence tutors' cognitions and in turn to affect their subsequent behavior in a teaching situation.

Feldman and Donohoe (1978) reported that black teachers seem to be more pleased nonverbally when interacting with a black than with a white child, on the basis of judges' ratings. Present results shed light on specific nonverbal behaviors that may mediate black subjects' differential behavior with black and white children: The black tutors tended to sit closer and use more up-and-down head nods when interacting with the black than the white confederates. These findings, combined with the earlier research (Chaikin & Derlega, 1978), suggest how blacks and whites may differentially encode positive feelings when interacting with children from the same race. Unlike the black tutors, white tutors used more eye contact and smiling when interacting with white than black confederates. Though the evidence is minimal, black and white adults seem to use somewhat different patterns of nonverbal behavior to express feelings (see Fugita, Wexley, & Hillery, 1974; Feldman & Donohoe, 1978). Obviously, more comparative data is needed examining subcultural differences between blacks and whites in encoding attitudes nonverbally.

A final word may be appropriate about the rationale for the subject selection in this experiment. We were not mainly interested in studying how a tutor's race per se influences reactions to expectancy information. Instead, the results with black tutors seem to suggest how prior experiences in a minority group may sensitize teachers to avoid stereotyping minority-group children on the basis of alleged low intelligence. Future research should consider how teachers from minority backgrounds respond to expectancy information in actual classroom situations, especially as a function of their own experiences with prejudice and discrimination.

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Footnotes

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[2]A judge (without knowledge of the treatment conditions except for the children's race) rated the confederates' nonverbal behavior on the following dimensions: forward, backward, and straight lean, eye gaze (defined as looking at the subject's face), up-and-down head nodding, nervous gestures, and smiles. One of the white confederates displayed more up-and-down head nods than the other children. The other white child displayed more nervous gestures than anyone else. Those differences in the confederates' behavior had no impact since subjects' behavior was not influenced by the identity of individual confederates.

[3]The index *d* gives an estimate of the size of an effect expressed in standard deviation units. Cohen (1977) suggests treating *d*s of .20, .50, and .80 as small, medium, and large effects, respectively.

[4]The following contrast weights were used in analyses on the tutors' nonverbal and verbal behaviors: (a) High expectancy-black child versus low expectancy-black child -- 1, -1, 0, 0, 0, 0; (b) High expectancy-black child versus control-black child -- 1, 0, -1, 0, 0, 0; (c) Low expectancy-black child versus control-black child -- 0, 1, -1, 0, 0, 0; (d) High expectancy-white child versus low expectancy-white child -- 0, 0, 0, 1, -1, 0; (e) High expectancy-white child versus control-white child -- 0, 0, 0, 1, 0, -1; and (f) Low expectancy-white child versus control-white child -- 0, 0, 0, 0, 1, -1.

[5]The contrast weights used in the analyses on the intelligence ratings were the same as in the analyses on the tutors' nonverbal and verbal behaviors.